MODIS Technical Team Meeting
Thursday, September 20, 2001
Building 33, Room E125
3:00 PM

Vince Salomonson chaired the meeting. Present were Jack Xiong, Bill Barnes, Dorothy Hall, Steve Kempler, Eric Vermote, Bruce Ramsay, Ed Masuoka, Barbara Conboy, Chris Justice, Bob Evans, Wayne Esaias, and Michael King with Rebecca Lindsey taking the minutes.

1.0 Schedule of Upcoming Events

· MODIS Science Team Meeting Tentative: December 17-19, 2001
Location: BWI Marriott

2.0 Meeting Minutes

2. 1 Instrument Update

Evans reported that he sent some images to Esaias showing problems with the science data from MODIS. A direct broadcast SST image (Bands 31-32) from the previous night (September 19) for east coast that shows a lot of red dots, which may be indicative of the formatter resets. See Figure 1.

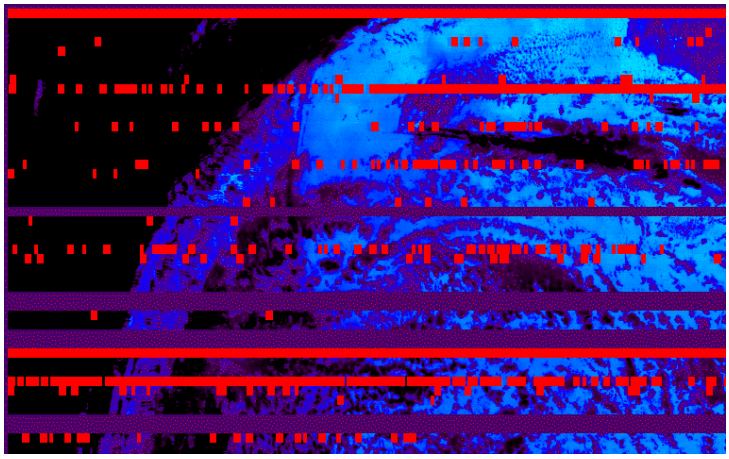

Figure 1: Nighttime SST from DB data 9-19-01, Bands 31-32

More importantly, Evans continued, a L1 counts for image from a North Atlantic segment on day 256 at 15:10 shows two types of data dropouts. First, a yellow band across bottom represents a loss of most of a mirror rotation. The data are offset relative to neighboring scans until at the right hand, eastern portion of the scan, there is a complete data drop. This change in data values is at present not easy to detect. For a portion of the scan the geolocation is also reported as bad by the geolocation flags. See Figures 2 and 3.

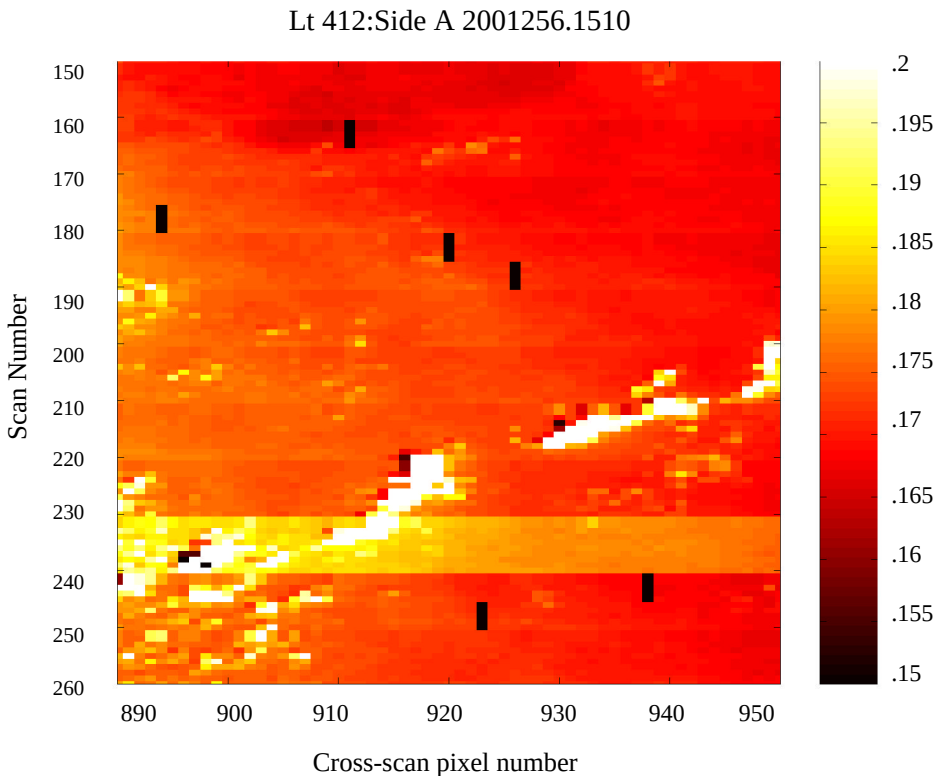

Figure 2: Mirror scan drop in L1A counts for Band 8 (412 nm)

The second type of problem is the appearance of numerous 1 pixel wide by 5 detectors high regions of low counts, giving the image the appearance of a 'punch card'. There is no spatial shift, like clouds. There are also larger somewhat rectangular sections that are affected—in addition to the pixels drops and line drops. This is current data and may be related to current formatter problem. The problem is not seen in all granules.

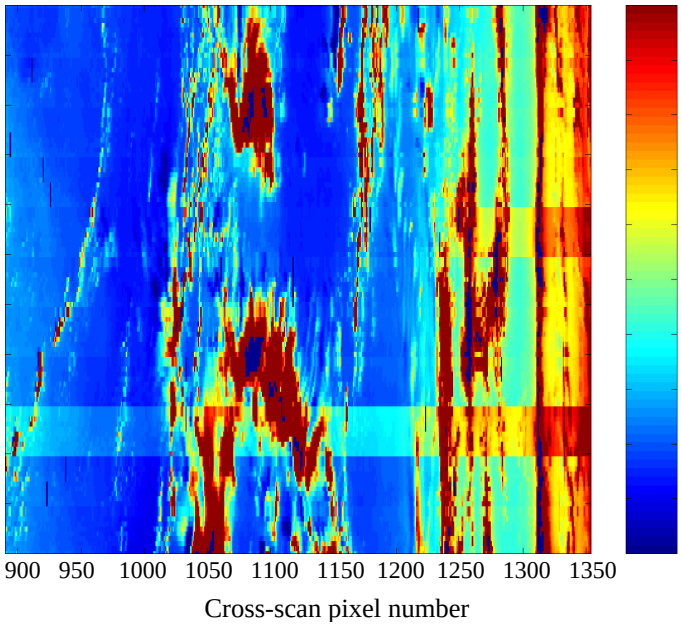

Figure 3: Continuing data drops in L1A counts in Band 8 (412 nm)

Salomonson asked if this was related to discussion at the previous day's MCST telecon about instability in mirror side differences. Barnes reported that these issues were not likely to be mirror sidedness, and could be the result of the increasing formatter resets that he mentioned at the previous week's meeting. Xiong reported that MCST is trying to get the same data (that Evans analyzed) through the regular processing system to compare with direct broadcast data. They are pretty sure that the issue is in the L1A, not L1B, which indicates that the problem is in the instrument.

Barnes then showed some charts chronicling the history of formatter errors since the power supply 2 anomaly in June; there have been a total of about 140, 000 to date. They began increasing rapidly in August. (See Attachment 1.) A second chart showed formatter rate in events per hour, which is up to about 4000 errors per hour (Attachment 2). The software patch causes them to be ignored, but counted. We have also seen new addresses where the signal is showing up. Chad Salo discovered that turning on the SDSM and SRCA, perhaps, or both, seems to decrease the rate of errors. Xiong also speculated that the peaks in error rates might be related to low temperatures. See Attachment 3.

Salomonson asked what was involved in switching back to B-side, how much trouble it would be. Barnes said it was not a big deal. We will be looking at this issue hard and soon, and also will ask the project how soon we could switch to B-side if that turns out to be our recommendation. Vermote said that we go back to B-side, he would recommend using the old Vdet/Itwk setting.

2.2 Atmosphere Update

King reported that he had been reviewing the revisions to the MODIS brochure, and has some suggested changes to the examples in the atmosphere section. He is working on getting images for all the group's L3 global products, and showed examples of cloud top pressure and optical thickness. He recommended Oceans produce global images of sea surface temperature, chlorophyll-a, and primary productivity on Hammer-Aitoff projections for the same time period (month of April 2001 from the provisional dataset). The L3 1° lat/long is a little ragged stretched out to print size, but with sharp continental outlines, it looks good.

King also expects to use a monthly mean column water vapor product from Bo-Cai Gao. For aerosol, there are regional images of effective radius and optical thickness that show Yoram Kaufman's investigation into coarse mode/fine mode ratios that indicate biomass burning versus industrial pollution. King added that for the cloud optical properties product, they have had one bug that affects arctic cloud retrievals over snow and sea ice. They have found one line of code that causes the problem. Fixing that one line improved retrievals from almost none, to almost total retrieval using the 1.24-micron channel. They are going to do some analyses over the Arctic to ensure the fix is on the right track and is robust, and then they might put in a request for a code change.

King reported that Paul Hubanks is updating the atmosphere site, including data processing history by month, showing instrument upsets, calibration upsets, when beta and provisional data are available, how many granules in the archive, etc. Kempler

commented that they are trying to do something similar at the DAAC, especially interested in showing beta/provisional.

King said that he had no schedule for the re-compete. He indicated that they might have to do three different RFPs: one for team leader, one for team members, and one for PI instrument teams.

Finally, King commented that they are going to be revising the first data products handbook (volume 1) that included Terra. Text for the MODIS data products might not change from volume 2 (that included Aqua), but this is an opportunity to submit new images and examples of products.

2.3 Oceans Update

Esaias reported that with the completion of the L3 monthlies in MODPAS, the Oceans team is ready to do generate some global images for the brochure that will look really good. Also, Mark Abbot has been producing SST and ocean color for about 2 months via his direct broadcast (DB) station, and that has been publicly available. Evans is working with Goddard DB to get data sent to Miami, get the oceans products produced and sent back to DB system for public access. Finally, he stated that Oceans has a new version of the QC web page that allows people to look at GIFs. Their provisional products begin with March, April, and May, but not the first two weeks of the period.

2.4 General Discussion

Salomonson reported that he had asked for 30 minutes on the IWG agenda to describe MODIS status in programmatic context, and he suggested that others think about science talks. King said there might not be time for talks, but posters definitely would be invited.

Salomonson announced his plans to initiate a review of the MODIS data processing system. He plans to have an internal TIGER team chaired by Bill Ridgeway, which would finish in 2-3 weeks and which would feed an outside review team in third or fourth week of October. He hopes to have results to report for his IWG presentation. Meetings will begin next week.

Salomonson also reported that he is planning to have a telecon with Science Team members on Friday, September 28, where he will address issues of importance and interest to the Science Team members.

With respect to software, Salomonson indicated that we are getting close to final agreement. A draft software usage agreement (SUA) is being circulated for comment. A week to review is being allotted for comment, and then the process for release of software that has completed all the steps for copyright, patent, intellectual property, etc. will begin. Not all MODIS products have completed the process, but some have thus making it appropriate to start releasing products.

2.5 FM1 Status

Barnes reported that tests on FM1 are going well. It still is true that Band 6 on FM-1 has several non-functional channels and Band 5 has one. There has been no great change during T/V tests in the status of the instrument in this regard, but it is still being monitored. Thermal-Vacuum tests won't be completed until the middle of October at the earliest.

2.6 Data Processing

Kempler reported that they have been reprocessing from November of 2000 at just over 2x in last week. They have seen peaks of over 3x. His understanding is that they should devote their reprocessing string first to November -December 2000, while the forward processing string will begin with September 15. After they have completed the November-December period, they will process July 2001- September 14, 2001. Finally, they will process January and February 2000.

They are examining test scenarios to prevent the problems like those that happened with 6A04. Postmortem on the problem by ECS gave a list of things they were going to do, and I am checking into each one of them to make sure they are being addressed. Kempler said that he is also concerned that the DAAC accepted the test, so they are looking at their own procedures as well.

Distribution to users is going up, even though the DAAC's numbers do not match the reports that King has been seeing in weekly reports from Dolly Perkins. The number she sees may not include any subscriptions. Kempler thinks the numbers are more like 50% of our volume. He expects hard media requests to increase, too. He will continue to investigate the numbers and get the most accurate estimate of distribution of MODIS data.

They have seen increases in subscriptions, having to do with channel subsetting. They are pushing larger orders. Also they are getting subscriptions from secondary data sites.

Masuoka reported that on MTVS1, Oceans and Atmosphere products are done for the March-May period. Land is done expect for 32-day, which will be done in the next couple days. On MTVS2, they are working on 32 day Land, and the rest is done. Day 305-310 are done at the DAAC, and they are working on that. For oceans, they have a new code delivery coming in, and they will look at when to put it in.

Vermote stated that he received test data for thermal leak comparison, but hasn't run the analysis.

2.7 NOAA-NESDIS

Ramsay reported that Helen Wood would like to start at technical level and discuss how and whether to mesh the MODIS Land Rapid Response System with NOAA's activities. Once they are comfortable with what the system entails, costs, etc, they would brief their management. It is expected that then Wood and NASA/Martha Maiden would get together and talk. Specifically, it is important to figure out what is gained over and above what will be achieved from the MODIS NOAA/NESDIS processing when it begins.

2.8 Cryosphere Update

Hall reported that discussions with Liam Gumley at University of Wisconson-Madison indicate that they will be able to get MODIS images through his Direct Broadcast (DB)/rapid response which can be used to create snow maps. The snow team first needs to make a few code changes, and hopes to be able to test the system in a few weeks. Ultimately, the DB may even be able to move into processing the actual snow maps. Gumley agreed to run the modified snow code in the DB system. Justice indicated

that they think about the Land Rapid Response System as a model, where the goal is to be able to distribute the code as a package to any DB system.

3.0 Action Items

3.1 Discipline leads to meet to resolve the issue of beta-release code and science-quality code, and what we need to say about it.

Status: Open.

3.2 Technical team to discuss further the issue of predicted ephemeris data and how to improve it.

Status: Open.